

**CONGRESSMAN KEN CALVERT (R-CA) SPEECH TO THE 21st ANNUAL
SPACE SYMPOSIUM IN COLORADO SPRINGS, COLORADO
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The Theme for the 21st National Space Symposium is "New Horizons."

It's easy to get excited about the next new thing in a field which basically creates the future. But, I believe that a new horizon is coming into our view and it is gatherings like this that will shape the policies, priorities, and indeed the very vehicles which will take us to these new horizons.

Of course, that means that the methods and motives that got us to this point may not be the most appropriate rules and tools for the future. We are in our fifth decade of human space exploration since Yuri Gagarin took humanity's first voyage into space. It was also a little more than five decades between the perilous exploration of Lewis and Clark and the Homestead Act, the policy rules and tools which helped us settle a frontier.

The very place which we meet today, the American West, was settled by an often fractious coalition of Government Administrators, Commercial Investors, Military Protectors, and wild-eyed entrepreneurs -- risk takers all --- sound familiar?

It's a good thing that we've retained that American collection of colorful characters as we try to settle the final frontier...because we're going to need them all.

As you all know, I am just beginning my tenure as the Chairman of the Space and Aeronautics Subcommittee in the House of Representatives. Although I have served on the Science Committee as well as on the Space and Aeronautics Subcommittee for twelve years, I now have a new perspective. I am here to listen and to learn about Space and our Nation's space program. I look forward to visiting with some of you here at the Symposium and to walking around the exhibit hall. I am also planning to visit each of the NASA centers during the 109th Congress.

We are at the cusp of a new era in space exploration. From where I sit, we are at a crossroads in furthering the human race's journey beyond the confines of our planet. As we look back on nearly half a century of unmanned and manned space flight we can be proud of our accomplishments. But as we look ahead to the future, the choices we make today will impact our space journey for decades to come. I believe that now is the time to take a hard look at our U.S. Space Program and to begin making the decisions about what kind of program we need for the future.

As we undertake this process we can learn from the past but we should not be constrained by it. The first steps on this road have already been taken. The Columbia Accident Investigation Board painstakingly documented the shortcomings of our national civilian space program in its 2003 report. In January of 2004, the President declared his Vision

for Space Exploration. In June of 2004 the Aldridge report provided a roadmap for realizing the Vision. It is now up to us to lay the groundwork for achieving that Vision, to put in place the policies, structures and funding that will allow us to succeed.

This isn't going to be easy. Building a new space program along the lines of the Vision requires that every aspect of our current program be analyzed and validated. Much of what we have today may not match up with what we need for the future. But at the same time there will be opportunities for fantastic new programs which we haven't been able to afford under the existing structure.

The President's Vision aims to fulfill and capitalize on mankind's nature to explore. Our space exploration program will provide exciting new scientific discoveries, but equally important is that it will provide a clear and focused set of challenges to the U.S. Space Program. Challenges that will drive launch technology, communications, sensors, robotics, new materials, propulsion systems and more. These advances will spin off into new capabilities for national security and commercial space. Why should everyone in the American space business care about exploration? Because it will be a huge technological engine that will spend over \$100 billion in pushing the state of the art over the next fifteen years. Everyone will benefit from this investment.

There are three primary areas that comprise our current US Space Program: Commercial Space, National Security Space and Civil Space and Aeronautics. They have a lot in common and each program is an integral part of our future in space. Each program has suffered setbacks and successes in recent years. Each program makes vital contributions to the national interest.

Unfortunately, each program has unnecessary barriers between them. These barriers have resulted in the duplication of efforts, excessive regulation, and a lack of technological synergy. The stove piping and lack of coordination has resulted in redundant research and development and procurement programs which leads to inefficiencies in all of the space programs. The result is that none of the programs have access to space that is as reliable, responsive or as efficient as they would like. They all lack that which they need the most.

There are many reasons these three programs developed barriers between them. Funding, philosophy, international treaties, security classifications, government regulations, the list goes on and on. The main reason is that our space habits and organizations were put in place during the first space age which was shaped by the Cold War. We are now in a second space age and we must respond to its unique challenges. We will need a new set of rules and tools to succeed in this second space age.

What concerns me more than how they arose is what is keeping these barriers in place. Some in the civil space programs don't want to cooperate with National Security space because of the perceived "militarization" of space. The National Security space program wants its own launch capability because they aren't confident that our civil and

commercial launch capabilities meet their needs. The \$30 billion a year commercial space sector works with both to win contracts to launch payloads.

But when it comes to the newest and most exciting field of commercial space, human space transportation, the leader in the field deliberately chose not to have any involvement with our civil space program. This is troubling on a number of levels, but none more so than the fact that finding cost effective ways of moving people into space will be a crucial part of achieving the Vision.

We no longer have the luxury of each sector of our Nation's space program working in isolation from the others. The barriers that separate our civil space program from our national security space program from our commercial space programs must come down so that the expensive duplication of effort is reduced -- while still keeping our critical national security programs secure. We're going to need government managers to work together, across different disciplines and organizations and even agencies. The legislative and executive branches need to talk more to each other as well.

The commercial space program has been reinvigorated by the recent success of Burt Rutan's SpaceShipOne. It is amazing what a small group of people could accomplish for a mere \$20 million. But just as important as the accomplishment of putting a man into suborbital space is that the X-Prize competition validated the incentive concept for commercial space. Congress strongly supports a prize program and we are developing a program to be included in the NASA authorization bill. I'm very pleased that NASA is starting now with a small prize program based on its current authority.

As we saw with the success of SpaceShipOne, there is even a chance of having commercial human space flight sooner than was thought even 20 years ago. There are companies like Constellation Services International, who have innovative ideas for taking cargo to the International Space Station; Kistler, who is developing a fully reusable two-stage unmanned space launch vehicle; and Elon Musk's company SpaceX, which is developing a simple, reliable, low cost launch vehicle. We need to take advantage of these great minds and to help NASA to take advantage of these commercially developed ideas as it plans for the future of exploration. By leveraging the power and freedom of the market Commercial sector has the potential to revolutionize space access, making it reliable and efficient.

National Security Space is growing to meet the needs of the Intelligence Community and the Department of Defense. In the President's Fiscal Year (FY) 2006 budget request for the Department of Defense, all space spending is on an upward trend and the launch support funding was doubled. This is reflective of the directives in the US Space Transportation Policy that was issued a few months ago. Space based radars, imagery and navigation satellites, communications satellites, and network centric warfare are here to stay!

For our military fighting the global war on terror, space is the high ground, space based imagery and communications are the weapon and bandwidth is the ammunition.

Operation Iraqi Freedom used 10 times more space based bandwidth than was used in Operation Desert Storm 12 years earlier. These technologies are some of those same technologies that are required for our civilian space programs – this is the time to combine these parallel technologies for the greater good!

Our Civil Space program is represented by NASA, an agency undergoing a radical transformation to align itself with the goals of the exploration vision. The President's Vision has given us a national direction and a destination for civil space. We will fly the shuttle until 2010. We will complete the International Space Station. Then we will go on to the Moon and to Mars. The Hubble Space Telescope program has been a fantastic program that has delivered images beyond our wildest dreams! It is performing beyond its original design life. NASA already has plans for a next generation telescope – the James Webb Telescope. Although we will have a gap of coverage, Hubble has delivered volumes of data that will keep scientists busy for years to come. NASA is planning the development of a de-orbit module, which I think is a wise way to proceed.

The challenges facing NASA right now are unprecedented. Here is an organization that is being tasked with revamping the operations of its biggest program, the space shuttle, so it can return to flight and complete its second biggest program, the International Space Station. At the same time it is developing a plan to transition from these programs to the Crew Exploration Vehicle and returning to the Moon and then going to Mars. NASA also runs a wide ranging aeronautics program, a robust earth sciences program, a diverse education program, space telescopes and many other research and development programs too numerous to list. NASA works with and relies on our international partners to service and construct the International Space Station and to send probes throughout the solar system. NASA even operates its own TV channel. It does all this on a relatively fixed budget.

The Space Operations directorate, in particular, is facing an extraordinary challenge. It is being tasked with returning the shuttle to flight in a “zero defect” environment with a mandate to keep the risk to the absolute minimum. At the same time NASA is being asked to transform itself to conform to the President's vision on space exploration, something that will require innovation and taking risks. The two mandates could not be more diametrically opposed.

I am confident that the people of NASA can meet these challenges. The work they have done in the wake of the Columbia tragedy has been outstanding. They have taken the Columbia Accident Investigation Board's recommendations for return to flight and developed amazing solutions to problems. They are attempting to forge a new culture and organizational structure to ensure safety and quality assurance in all of their operations.

But to move into the future NASA's workforce deserves an organization that is designed around their core mission. They deserve personnel policies that maximize the use of their drive and talent while offering a viable career path. They deserve a plan for the future and the budget to get us there. They deserve the chance to benefit from the synergy that

comes from cooperation with the commercial and National Security Space sectors. We need these technicians, engineers and scientists. And NASA needs a Human Capital Strategy that retains the best people and encourages the next generation to pursue careers in science, engineering and technology.

It's up to us in Congress and the administration to provide that support. The President has given us the broad vision, a clear space transportation policy and nominated a new administrator for NASA.

Congress must now provide a rational and stable budget to accomplish the goals laid out by the President. Most importantly, we must exercise our oversight authority to ensure the U.S. Space Program stays on course.

Getting a NASA Authorization bill to the President is one of my highest priorities this year. We have a lot of new players on the Space committees in both the House and the Senate. Not only am I new as the Chairman of the Space and Aeronautics Subcommittee, but I have a new Ranking Democrat – Cong. Mark Udall of Colorado. Mark and I serve on other committees together and I look forward to working with him in this 109th Congress, under the leadership of Science Committee Chairman Sherwood Boehlert, as we shape the future of NASA.

On the Senate side, we have a new Chairwoman of the Science and Space Subcommittee – Sen. Kay Bailey Hutchison of Texas as Chair and Senator Bill Nelson of Florida as her Ranking Democrat. Both have NASA interests in their states.

From the beginning, I have supported the President's Vision. We in Congress asked him to offer a direction for our civilian space program – and he did. I know how difficult that it is to get a NASA Authorization through the Congress. I plan to work with members of my Subcommittee and the Science Committee to get a bill out of the Committee and through the House. I also look forward to working with my colleagues in the Senate to get a good bill on to the President's desk for signature. We owe it to NASA and our Nation to take leadership in the direction that NASA is moving.

My role as Chairman of the Space and Aeronautics subcommittee will be to focus on NASA and its programs and on our commercial space sector. We need to be sure that the entrepreneurial spirit on which this Nation was founded thrives as we push towards the outer limits of exploration. The bill that originated in our Committee -- the Commercial Space Launch Amendments Act -- last year went a long way to paving the road for some of these entrepreneurs to operate safely and still have the flexibility of a small entrepreneur.

I am looking forward to working with the newly appointed Administrator for NASA – Mike Griffin – once he is confirmed – probably around the second or third week of April. He appears to be the right person for NASA at this time. He is a free thinker, a rocket scientist, and a business man who understands the government. What a great combination to lead NASA at this critical time!

He's going to have a lot on his plate. There are a lot of big decisions ahead for NASA, both within the Vision as well as other areas. Although NASA is one of the few agencies to receive an increase in the FY06 President's budget request -- it received a 2.4% increase, it still fell short of the planned increase of about 5% that was projected when the FY05 budget was sent to the Congress last year. I would assume that NASA's current request of about \$16.5 B is probably the best top line that we will see. We in the Congress may have to realign spending within NASA to be sure that this Nation is getting the most bang for its buck in its civilian space investment.

In addition to the traditional approaches, NASA will have to examine entrepreneurial options that have been developed by some of our brightest minds. We will need the best and the brightest of our talent to make this work.

A sustainable exploration strategy is key to the Nation's success. This movement forward will be impossible if we insist on clinging to legacy programs and the old ways of doing things. The status quo will not move us forward. NASA's role is to accomplish the "extreme" -- going where humans have never gone before!

For the Vision to succeed, it must be a sustainable program that will require incremental development -- build a little and fly a little, build a little and fly a little... There will be a mix of robotic and manned missions as we explore space. There will be a sharing of technology and innovation between robotics and human space flight.

There are a lot of milestones ahead in the Vision. In the near-term, the Crew Exploration Vehicle (CEV) has an Request For Proposal (RFP) that was issued March 1st and has a response expected from industry by May 2, with a contract award on September 1st. Then launch vehicles will have to be chosen -- decisions must be made on the Evolved Expendable Launch Vehicle (EELV), shuttle-derived vehicles, or other heavy lift options.

When we talk about aligning NASA with its core mission of Space Exploration we are talking about people, infrastructure and budget. But the people are the lifeblood of the organization. The NASA workforce represents the greatest pool of engineering, technical and scientific talent the world has ever seen. They are a national resource whose skills will be essential to meeting the challenges NASA faces today and achieving the goals of the vision in the future.

But I don't think the current NASA structure or even the ongoing reorganization properly capitalizes on this talent. Moreover, I am concerned that we are providing conflicting signals to this workforce and not sufficiently involving them in the process of change. A perfect example is the proposed personnel cuts in NASA's Aeronautics program. Cuts that are being driven by the budget rather than the mission.

What's happening in NASA's Aeronautics program is a microcosm of the change in NASA. Now I believe that aeronautics research and development is an important sector for investment for our Nation. And let's not forget that the first A in NASA stands for

Aeronautics. But what should NASA's role in Aeronautics be? Should it be developing air traffic control systems and new technologies for commercial aviation safety? Or should NASA be developing cutting edge aircraft that push limits in speed, distance and altitude?

I think both are a National priority. The Europeans have thrown down the gauntlet and said that they will dominate aerospace in the world by the year 2020. Aerospace products are a huge source of export sales and a major contributor to the United States' international balance of trade. Our Nation's preeminence in commercial aircraft is being seriously challenged by Airbus and many believe that reduced aeronautics research and development funding has directly played a role in the cause of this weakened position of the American aerospace industry. But is this type of commercial aeronautics development a NASA priority? Or are the technologies mature enough that their refinement would fit within another government agency? We need to be sure that we are getting the most efficient investment with our NASA dollars.

Which brings me back to the people issue. Over the next five years, NASA is proposing to reduce its aeronautics workforce by approximately 2000 people and to shut down a number of its wind tunnels. But NASA has yet to decide on an Aeronautics strategy. How can you properly align the people and infrastructure with the mission if you don't have a clear mission?

There is a lot of concern that the investment in aeronautics research and development by this Nation has been limping along for several years, and that there is a lack of a national strategy.

The lack of a National Aeronautics strategy is reflected in the haphazard personnel cuts and buyouts being implemented in NASA's Aeronautics program. In the last Congress we passed a bill that gave NASA greater flexibility with personnel policies. But it appears that the current reductions in workforce are driven by the budget rather than a Human Capital Strategy. One of my main concerns with the current buyout plans is that the workers we need the most are leaving NASA.

NASA needs a Human Capital Strategy. A recent GAO report on the NASA workforce makes that clear. But in order to develop a Human Capital Strategy NASA needs a clearly defined mission.

It may be time for something like a Zero Based Review for NASA that would look at the entire organization down to the individual employee level. The goal would be to create a new, requirements based organization capable of fulfilling the exploration vision and NASA's other core missions.. It would involve quantifying the skills needed to man the organization and then putting people in positions that required their particular skill set.

Admiral John Cotton, of the US Navy Reserve, has briefed me on the Navy Reserve's recent Zero-Based Review. Implementation of the recommendations of this review allowed the Navy Reserve to most efficiently make use of its personnel. It was so

successful for the Navy Reserve, that the US Navy is implementing a similar review across the entire service.

A Zero-Based Review, or similar private sector management and personnel solution, could be beneficial for an agency in transition-- like NASA -- to consider as it moves forward. This would allow NASA to leverage its human capital in a cost-effective manner.

As NASA is trying to “reinvent” or “transform” itself, it will also have to take a hard look at its infrastructure. NASA’s infrastructure is not designed for its future direction. Our wind tunnels are dated. Test stands for rocket engines are limited. We need to do more in technologies, materials, engines and sciences.

However it comes about, a newly focused NASA will rely on the commercial space transportation industry to accomplish its mission.

It is vitally important that NASA learn to buy space goods and services from this industry in a market-friendly fashion. NASA needs to do this not just to help the industry, but also to help itself move out into the frontier and explore.

We in the Congress now have to foster the synergy among all the space programs through funding levels and legislative oversight. We in Congress need to offer NASA a framework for solutions as NASA restructures to adapt to the new direction provided by the President’s Vision.

The people in this room need to work together to enable the comprehensive change our space program so desperately needs. My challenge to you is to help us build a new space program. Don’t cling to legacy programs or the old way of doing things. I want to hear your ideas, but they must come in the context of the new program we are creating.

I am in the learning mode. I need your inputs. Bring me innovative solutions to problems. I expect every program to be able to justify its use and cost in the context of a mission statement. I have met with folks all over the space spectrum. The only common theme is that no one is happy with the National Space Program that we have today. We can and we must do better – we will do better. Our economy, security and our quest for knowledge depend on it.

We have the building blocks for a fantastic space program. American technology, entrepreneurial spirit, and drive to explore the unknown are second to none. We will lead the way into this second space age. Thank you very much.